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ABSTRACT

DNA is a natural molecular level storage device. Molecular storage devices use each molecule or part of it for storing a character. Thus it is possible to store information million of times than presently used storage devices. For example a JPEG image (i.e. flag of India) having file size of 1981 Bytes can be encrypted using 7924 DNA bases which occupies about 2694.16 nanometers. In other words flag of India can be encrypted 8.07×10^5 times in human genome which comprises 6.4×10^9 DNA bases and occupy a tiny volume of about $0.02 \mu\text{m}^3$. A method for storing information in DNA has been developed which includes software and a set of schemes to encrypt, store and decrypt information in terms of DNA bases. The main advantages of the present method over exiting art is that it addresses complete set of extended ASCII characters set and thereby, encryption of all kind of digital information (text, image, audio etc.). First of all, information is encrypted along with carefully designed sequences known as header and tail primers at both the ends of actual encrypted information. This encrypted sequence is then synthesized and mixed up with the enormous complex denatured DNA strands of genomic DNA of human or other organism.